

ICI

magazine
November 1969





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- 1** A steam train high in the Andes. Between Argentina and Chile this line reaches 10,000 feet. On page 252, P. R. Sandars, retiring overseas personnel adviser, recalls his career and varied travels.
- 2** In 'Down to the Sea for Shrimps', page 250, Edwin Swarman of the P & P Lab, Runcorn, who lives by the Dee estuary, explains the mysteries of shrimping.
- 3** At ICI's Message Switching Centre in Manchester, many thousands of messages a day come in, go out, and are stored. 'Getting the Message - with 'Max'', page 247.
- 4** This French stamp commemorates the 50th anniversary of the International Labour Organisation. Picture shows Albert Thomas, the Frenchman who was the first Director of ILO. See page 244.
- 5** He's all wrapped up - inside the cold store where dishes cooked well in advance are kept until needed. Read about 'Operation Icicle' on page 260.



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Volume 47 Number 356

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people in print



When P. R. Sandars, who retires from the post of overseas personnel adviser this month, first joined ICI in 1929, the Company was very young and its trading patterns very limited compared with the growth he has seen in 40 years' service on the overseas side. During four decades of change and growth, as he relates in his article 'East, West and everywhere – for ICI', on page 252, he has dealt with staff in over 45 countries, and taken 4000–5000 colour slides, a few of which we reproduce in the article.

Following war service, during which he was awarded the OBE and became a Lt-Colonel, he

rejoined the Company's Far Eastern Department, of which he became head in 1951. He was Director of ICI Export Ltd from 1951 to 1957, when he became overseas personnel adviser. In retirement he looks forward to staying in one place for a while and cultivating his garden – and to travelling at a more leisurely pace.



Jack Coates and Richard Fairclough are joint authors of 'ILO – the first 50 years', on page 244. Jack Coates, general manager – personnel, volunteered from Cambridge to fly with the RAF in the last war, became a Wing Commander and was awarded the DFC. He joined ICI in 1948 as a labour officer at Billingham. Transferred to the then Metals Division in 1951, he was Division labour manager, Kirkby works manager, and a sales manager, before being appointed personnel director of Dyestuffs Division in 1958. In 1963 he moved to Head Office as personnel manager (staff), taking up his present appointment in 1966. Leisure interests include sailing and fishing.

Richard Fairclough is general manager (production) in Agricultural Division. He left Oxford in 1939 with a B.A. (Chemistry), B.Sc. and D.Phil., and joined ICI just before the war. Has had a wide variety of technical jobs at Billingham and spent two years at Millbank in the late 1950s as P.A. to Mr W. D. Scott, who was at that time a Main Board Director. Interests lie in music and the arts as listener or spectator, and in gardening as an increasingly dilettante performer.



'Paddy' Thompson and Maurice Magson collaborate to give us 'Getting the Message – with 'Max'', on page 247. Australian by birth, of Irish parentage, Paddy Thompson was educated in the USA, and joined Dyestuffs Division at Manchester in 1948. She spent eighteen years as supervisor of the distribution department's teleprinter and typing services, transferring to Management Services in 1966 to take over

operational responsibility for the 'MAX' network. Formerly an expert swimmer, Paddy now cultivates more relaxed pursuits, which include music, reading and knitting.

Maurice Magson, information manager at Central Management Services, Wilmslow, joined Dyestuffs Division in 1941, served in the RAF from 1943 to 1947, and went on to Bristol University. On graduating in chemistry in 1951 he rejoined Dyestuffs Division at Blackley, where he spent several years in photographic research and polyurethane development before specialising in technical information and publicity. He moved to his present appointment in October 1968. An avid reader, reluctant gardener, and amateur movie-maker, he has wide musical tastes, enjoying classical works and playing 'pop' music on the piano, and for many years scripted and produced the annual revues of Dyestuffs Division's Woodlands Club.



Edwin Swarman, who writes about shrimping on page 250, is an instrument project engineer in the Petrochemical & Polymer Laboratory at Runcorn. A keen amateur photographer, he has had several successes in local exhibitions and the Mond Division Photographic exhibition. He is Commodore of the Rhyl Motorboat Club, and also finds water skiing a most exhilarating sport.

Front cover: At more than 30 miles an hour, a troop of ostriches races out from a pen in the Little Karroo, the arid hill country above the coastline of Cape Province, South Africa. Not so popular as they once were for ladies' hats and fans, the wing feathers are still used to make dusting brushes. Ostrich flesh is dried in the sun to make a form of 'biltong', tough to chew but with quite a flavour, while the skin can be made up into very tough, very expensive, very exclusive leather shoes. When P. R. Sandars, the Company's overseas personnel adviser who retires this month, visited South Africa in 1959, he was invited to ride an ostrich but 'did not think it advisable . . .' See also picture opposite and other pictures in his article 'East, West and everywhere – for ICI', on page 252.

Photograph: P. R. Sandars

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ILO

the first 50 years

Jack Coates

Richard Fairclough



Fifty years ago in Paris one of the first acts of the peace conference at the end of the first world war was to set up a commission on international labour legislation; and when that commission met it had before it two pages of typescript submitted by the British delegation. This contained the then radical proposal, strongly supported by the British and French prime ministers, Lloyd George and Clemenceau, that a permanent international organisation should be set up with representatives not only of the governments but also of the workers and employers of each member country.

The constitution of this new body – the International Labour Organisation – which was incorporated in the Treaty of Versailles, has lasted well and with some amendments is still the charter under which the ILO works. Its purpose is expressed in the first few lines of the preamble:

‘Whereas universal and lasting peace can be established only if it is based on social justice; and whereas conditions of labour exist involving such injustice, hardship and privation to large numbers of people as to produce unrest so great that the peace and harmony of the world are imperilled; and an improvement of those conditions is urgently required: . . .’

Now, after 50 years the ILO has just been awarded the Nobel Peace Prize for 1969.

When the ILO was established in 1919 there were 45 member states; now there are 121. During the last 20 years, with the spread of independence among former colonies, the balance of membership has shifted. Before the last war it consisted mainly of the industrialised countries of Europe and North America, but today most members are developing nations.

At the outset, the main task of the ILO was to improve conditions of life and work by building up a comprehensive code of law and practice. Between 1919 and 1968 a total of 260 Conventions and Recommendations were adopted which together form the International Labour Code. They range over basic human rights questions (such as freedom of association, abolition of forced labour, and elimination of discrimination); labour administration; industrial relations; employment policy; conditions of work; social security; occupational safety and health; and the employment of women. Some 5000 international obligations have been accepted on the basis of the Conventions.

With the change in the balance of membership, the emphasis in the ILO's

activities is now placed less on protecting workers from the adverse consequences of industrialisation and more on helping industrialisation and development to come about. The greater part of this direct assistance to developing countries, including a major contribution from Britain, has been aimed at developing the skills and effective utilisation of their manpower, in the belief that the wise deployment of human resources can compensate to a large extent for a shortage of capital.

According to one estimate, by the end of 1970 half the world's population will be living in the hundred or so emerging, independent nations of Africa, Asia and Latin America; yet these people will enjoy only one-sixth of the world's goods and services. At the present rate of progress it will take a century-and-a-half to double the income per head in South Asia, without taking account of the population explosion.

Although a few western industrial companies, such as our own, have helped their overseas associates to build up experienced management teams, there is generally a desperate shortage of nationals of these developing nations who in the short term can be developed into managers. In countries like the USA and Great Britain more than one in every 100 employed people has at least 12 years of education; in developing countries, less than one in 1000, and in some African nations, less than one in 10,000.

To help redress the balance, the ILO has over the past 17 years carried out projects in 65 countries for training managers, leaders of trade unions and employers organisations, and government officials. To advance this work it has established an International Council of Labour Studies in Geneva and a Centre for Advanced Technical and Functional Training in Turin. For the future, the ILO is calling on all its members to co-operate in a World Employment Programme in the 1970's.

The International Labour Organisation at Geneva is affiliated to the United Nations Organisation and is composed of a yearly general assembly (the International Labour Conference), an executive council (the governing body), and a permanent secretariat (the International Labour Office) whose Director-General since 1948 has been an American, David Morse.

The governing body is advised on the problems of concern to particular industries by Industrial Committees which ‘by bringing together people with practical knowledge in a given sector provide an opportunity for a free, full and frank



examination of common problems at international level'. ICI has always taken a close interest in the ILO's activities and has participated directly in the employers' delegation to the Chemical Industries Committee which meets at about five-yearly intervals.

The seventh session of this committee formed part of this year's 50th ILO anniversary programme in Geneva and with two colleagues from the Chemical Industries Association, we were fortunate enough to be members of the British employers' delegation. The British trade union delegates were Mr A. Moss Evans of the Transport and General Workers' Union and Mr F. L. Wells of the General and Municipal Workers' Union.

Among the government representatives was our old ICI friend, Frank Perkins, formerly head of Education and Training

Department at Head Office. The proceedings of this committee were built around three comprehensive reports prepared by the ILO: one on the general state of the industry, a second on the effects of advanced technology on employment and conditions of work, and a third on training.


At an international meeting of this kind one quickly understands how unwise it is to generalise about industrial relations matters; British ideas about the importance of productivity bargaining and our concern about trade demarcations, for example, were largely irrelevant to most of the other countries. Arguments about 'co-determination' or workers' participation in industry seemed much more important to them, but suffered from differences in the meaning of the words when translated into different languages. Even so there were notable divergences between different national outlooks.

The South American employers and some of the Europeans were staunchly opposed to any form of participation and even seemed dubious about the merits of much consultation. The British employers and trade union representatives were much struck by the fact that apart from some of the US and Scandinavian delegates, no-one seemed to be ready even to contemplate the kind of collaborative operations between management and unions which are now going on in ICI.

It seemed all too clear that in many countries the employers and unions felt it to be their duty to oppose each other to

the maximum possible extent on every question. Interesting contributions came from Russian, Polish and Yugoslav delegates; in Russia particularly it appeared that the decision-making process presented no problems!

The developing countries felt that the agenda of this particular conference had only limited relevance to their needs. In one of the best speeches made to a plenary session, an Indian employers' delegate drew attention to the primitive state of industry in his country and remarked that the boredom said to be felt by process workers in modern automated plants, referred to in the discussions, could scarcely be matched against the boredom of India's 14,000,000 unemployed!

Although when one becomes immersed once again with more immediate problems back at home, the direct value of such proceedings seems to recede, the industrial committees of the ILO do provide a unique forum for the exchange of views on common problems of a non-political kind and we came away believing that the world would be the poorer without such opportunities. It was reassuring too to find that Britain's delegates, whether from management, government or the unions, seemed to be accepted by all other nations as a moderating and constructive influence which may still have a lot more to offer the world than we are ourselves inclined to believe. 

References: Address by David A. Morse to the CBI, July 1969. 'Emerging Nations—A Challenge to Management', J. W. Humble.

Above: Dr Fairclough (left) and Mr Coates (third from left) with three other British representatives at this year's session of the ILO Chemical Industries Committee in Geneva. From left to right these were Mr F. L. Wells (GMWU), Mr A. Moss Evans (TGWU) and Mr J. T. Collins (CIA). **Below:** Lake Geneva, from the ILO grounds



getting the message-with 'max'

Maurice Magson/Paddy Thompson

ZCZC MSC BB CHAN ELEM ...

Yes, it's a code all right, and if you can read it without hesitation, it probably means that you are a regular user of the Company's teleprinter service, for this is how such messages start. This particular message happens to be about an electronic marvel called 'MAX' (Message Automatic Exchange) which lives high above the busy centre of Manchester, on the 29th floor of the Piccadilly Plaza skyscraper. MAX is a main nerve centre of ICI's communications network – a fully-computerized telegraph switching centre which is one of the largest privately-owned systems in the United Kingdom. Installed by the Plessey Company towards the end of last year, and administered by Central Management Services, Wilmslow, MAX is now processing over 5000 messages a day – and can handle considerably more. The entire network connects nine major ICI centres via 'trunk routes', servicing a total of 117 teleprinter terminals in 94 factories and offices, and can be easily linked to the GPO Telex system for overseas communication.

In modern industry, vast quantities of information have to be conveyed, and much of it demands the accuracy, clarity and permanence of the printed word. The telephone?

Fine – we'd be lost without it – but imagine processing large customers' orders through conversation alone. Letters and forms by mail? Yes, if same-day speed is not absolutely vital. The system that can offer the best of both worlds is the teleprinter service.

For many years, the Company's need for swift exchange of printed messages was met by the TAS (Teleprinter Automatic Switching) system, with machines and lines rented from the GPO. Although this system served the Company well, it had its disadvantages. Transmission speed was limited, either by the operator's dexterity or by the speed of the teleprinter: messages going to more than one destination had to be sent separately, and since calls were dialled in the same way as telephone messages, an engaged signal often meant a long wait for a connection.

MAX overcomes these disadvantages with a fast, accurate and economical service. This is achieved in two ways: firstly, all the new teleprinter machines in service now operate at a speed of 600 characters per minute – twice as fast as the previous types. Secondly, all messages are routed through the central

computer at Manchester, where they are automatically recorded, processed and sent out as soon as the line to the destination is free, usually in less than a minute.

Messages for several destinations are automatically copied to each addressee by the computer, so it is no longer necessary to call each in turn: one message serves all.

How does MAX work? Although the detailed operating and programming of the computer is a highly-sophisticated process, the basic principle is simple enough.

When a message is sent to MAX from any terminal, it is stored on a magnetic drum and effectively placed in a 'queue'. This 'queue' is rapidly and continuously scanned for open-line destinations and for priorities. If there is no waiting traffic, the message is sent immediately, otherwise it is sent according to priority.

This priority system allows the sender to group messages for the same destination as a 'parcel'. Every message transmitted is written on magnetic tape and stored for future reference. These tapes are kept for ten working days so that further copies can be produced quickly in the event of loss or faulty transmission. Each message is numbered serially, so that it can easily be found on the magnetic tape, and through these numbers a daily total of all incoming and outgoing traffic is kept.

Stage by stage, what happens when you send a message is outlined on the next page.

To complement the MAX private network, there are six GPO Telex lines and a private line to the USA at the Message Switching Centre, so that messages received by MAX can be transferred to the national and international communications system. This works the other way round, too: messages received by Telex or by the trans-Atlantic line can be




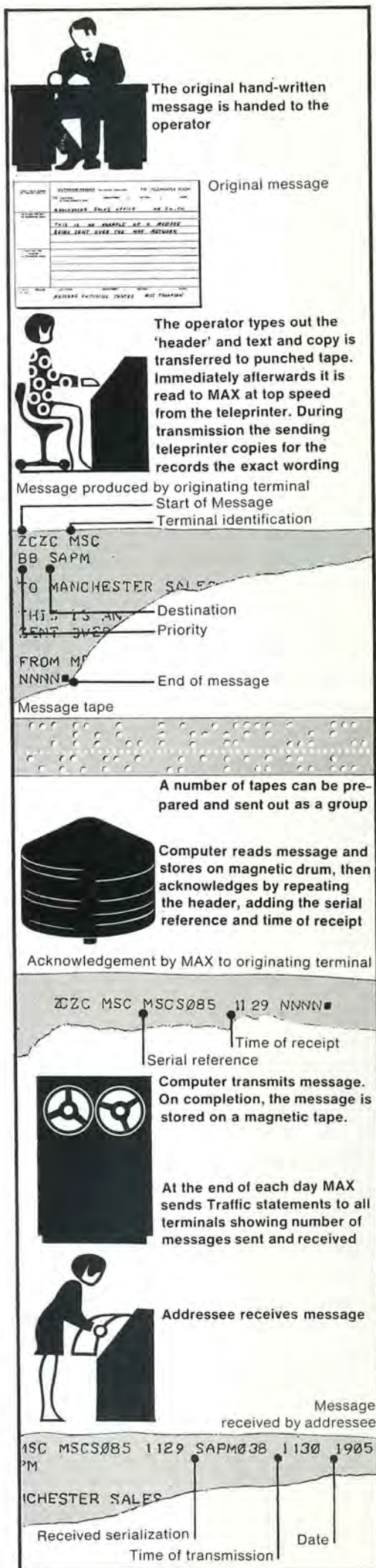
Inside ICI's Message Switching Centre, Piccadilly Plaza, Manchester. In the background are the magnetic tape decks; top right, drum store cabinets; centre, four teleprinter machines. The GPO Telex machine can be seen, left, in the foreground

redistributed within ICI through MAX. The Telex machines at the Centre are in daily communication with all overseas companies and associates, sending and receiving messages of all kinds. Consequently, MAX provides a single point of contact in the United Kingdom through which overseas associates can send all messages for redistribution throughout the Company. In this article, we have referred to *the* computer, but in fact MAX has two Plessey XL6 computers, each of which is capable of handling a full day's traffic. In practice, both are working together, 'talking' to the store and splitting the traffic between them. However, if one should fail to respond for a fraction of a second, the other automatically assumes that it is faulty, switches it out of service, informs the engineers and takes over the entire load itself. Message switching carries on quite undisturbed until the fault, if any, is put right. It is through this 'fail-safe' system, coupled with other safeguards mentioned previously, that reliability is achieved. One of the computers will soon be able to 'talk' to other computers at any point in the Company, while its twin is dealing with routine messages. This, then, is MAX – the fastest, most sophisticated, yet easy-to-use system for exchanging printed information, capable of transmitting messages to any ICI home terminal in less than a minute, or to any Telex point overseas within a few minutes, depending on the availability of a GPO line. Quite a service, tempered only by the fact that passing messages between office and terminal can often take very much longer! Nevertheless, short messages usually can be telephoned to the local terminal for transmission, and incoming messages are often read to the addressee over the telephone in advance of the printed copy. In fact, given good internal services, there is no reason why we shouldn't use MAX as regularly and conveniently as that useful but occasionally

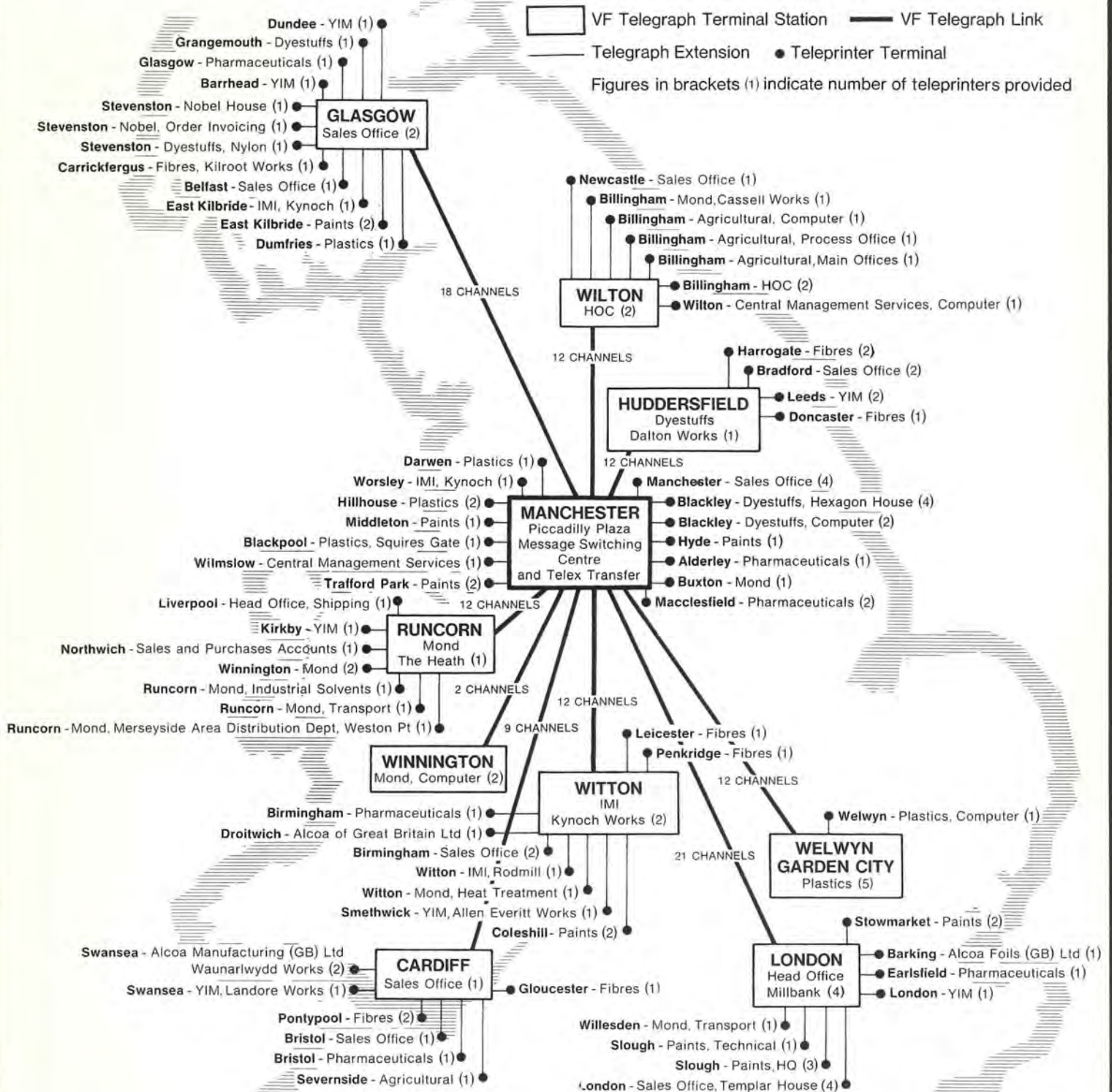
temperamental instrument, the telephone.

Message received and understood? NNNN.....

- 1 Operator at terminal, with line always open to 'MAX', types out a series of symbols called 'the header'. This contains all the directions needed by the computer to send a message, plus all the information needed by the terminals for recording and security checks. 'Header' includes, in order: commencing signal, 'ZCZC'; operator's own identification letters; priority code ('AA'=most urgent, 'BB'=normal etc.); and one or more destination indicators e.g. FIPP – ICI Fibres Ltd, Pontypool.
- 2 Operator then types main text, followed by end-of-message signal – 'NNNN'. As this happens, message is punched on paper tape at operator's *normal* speed. Immediately afterwards, it is 'read' to MAX at *top* speed from the teleprinter. This occupies the transmission line, therefore, for the shortest possible time. A number of short tapes can thus be prepared and sent out as a group, to make the most economical use of 'line time'. During transmission the *sending* teleprinter copies for the records exactly the wording sent to MAX. This helps in checking.
- 3 Computer reads message, then acknowledges it by repeating the 'header', and adding the serial reference number and the time message was received.
- 4 Computer now stores message on its magnetic drum until it is selected for transmission.
- 5 Computer sends message out, at the same time adding to the 'header' the destination indicator code (more than one if message goes to several places); the serial number of the receiving terminal; and the date and time of despatch. This enables the receiving terminal to check that no messages have been missed.
- 6 Transmission completed, the whole message now goes on to magnetic tape and is stored. Serial numbers provided by the computer serve as filing reference and as a check on the running total of all the traffic being handled. At the end of each working day, MAX sends a Traffic Statement to all the terminals on the network, showing the number of messages sent and received on that day. 



ICI 'MAX' TELEPRINTER NETWORK



Nothing satisfies me more than sitting down to a fresh salad or cocktail of fresh shrimps that I have caught myself. To enjoy shrimping regularly, of course, it helps to live by the sea, and here I am lucky to be near to a fine sandy beach.

It's also just as well to keep a sharp look out for one or two hazards that have been known to trap those who go down to the sea for shrimps. It's all too easy to get so carried away with the excitement of chasing the shoals of shrimps as you wade barefoot through the shallows near the sea's edge, that you find your retreat cut off by the deep gullies of the rising tide.

The answer in such a situation is not to panic but to make your way back to a point opposite the place from which you originally left the shore to walk out to the water's edge. Even so I was once forced to jettison my catch and swim back across a gully. It was a fine catch, too . . .

One other hazard is the weaver or stinging fish, varying in size and quite harmless in water. Once caught, the weaver must not be touched by hand, or the three-pronged tail will whip over in a flash to inflict a sting that causes great swelling and discomfort for several days.

At certain times of the year a sea mist can come down suddenly along the coast and this can be quite a frightening experience for the lone shrimper caught out across the sands. That's why I always carry a compass. From this you will gather that my shrimping is done not by boat but by 'putting' (pushing) a net along the submerged sands at low tide and so digging out the shrimps.

Shrimp is the popular name for a number of small decapod (ten-footed) crustaceans but it is applied particularly to the edible brown shrimp, the brown colour being imparted by cooking, like the redness of the prawn and lobster.

The shrimp differs from the prawn in several ways. The carapace or helmet which covers the head and forepart of the body is not extended forward; only one pair of antennae is long; and there are no nippers to the walking feet.

It swarms in large numbers and feeds on minute marine organisms and debris, swimming over the sand (the colour of which it assimilates) by incessant motion of its swimmerets. When alarmed, it sinks invisibly into the sand. The female also uses her swimmerets for carrying her numerous eggs. A change of sex is a common occurrence in the life of some shrimps.

In certain species, a shrimp may start life as a male but after about 12 months develops female characteristics, later developing eggs on the reproductive organs.

Although the colour of the living shrimp is transparent or grey, to blend in with its surroundings, not all shrimps are so inconspicuous. Some of the shrimps in Japanese waters for instance, compensate for their apparent blackness by having luminous organs. Most of this light is produced by chemicals made in the body itself, but some of it is induced by luminous bacteria which infect the shrimp to give its whole body a glow.

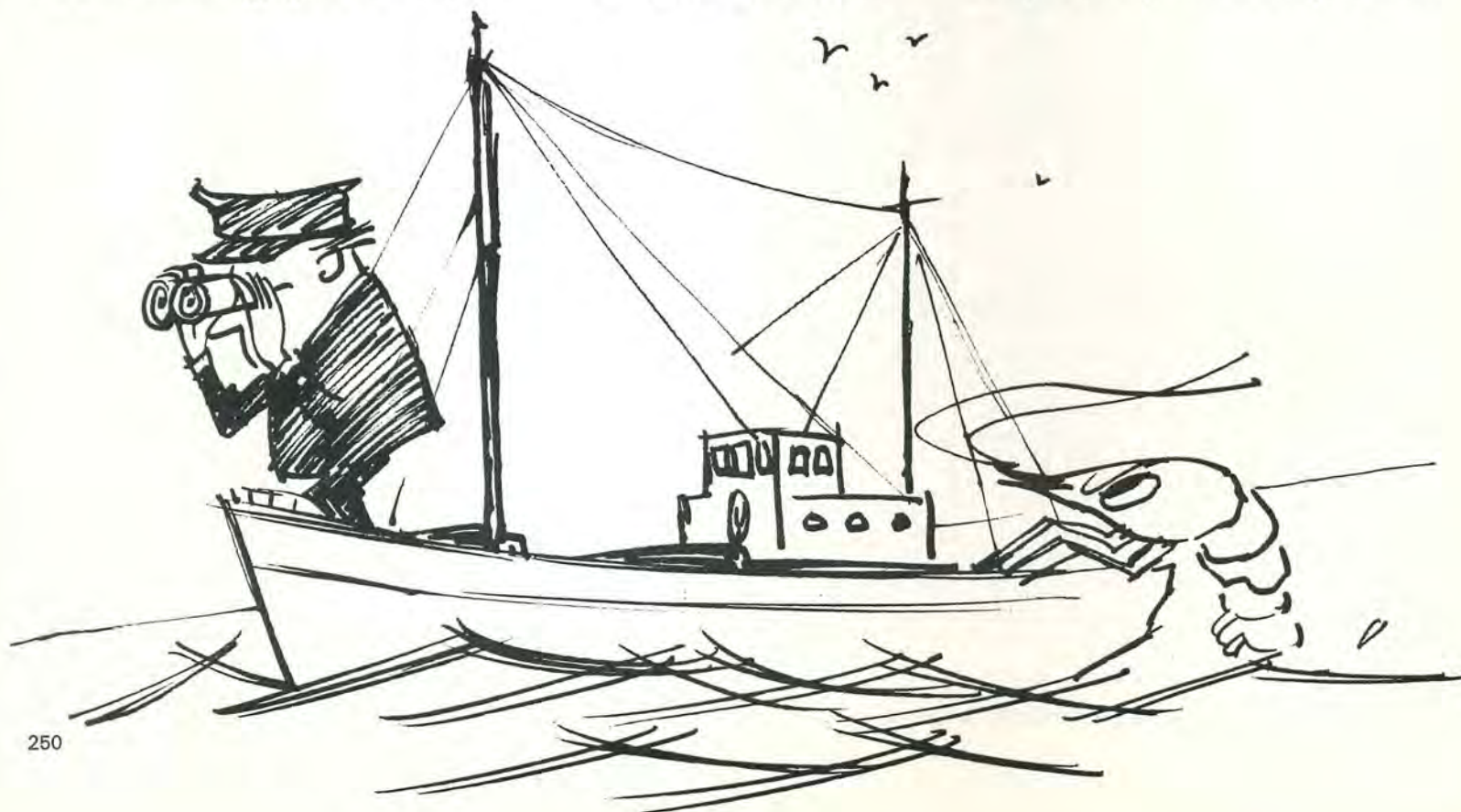
In Lake Suva, Japan, the freshwater shrimps are often infected with the bacterium *Microspira Phosporeum*. On hot summer nights, these shrimps swarm to the surface of the lake and the brilliant glowing light provided by the bacteria is of such beauty that the shrimp is protected by a Government order.

Increased interest in sea-fishing as a sport has recently led to quite a demand for live bait, and shrimps are sought after for this purpose, since they form a considerable part of the food of sea trout, flat fish and other shallow-water species.

The largest shrimp fisheries in the world are in the South Atlantic and Gulf of Mexico states, where the shrimps are caught entirely by trawl. Trawl nets here can measure up to 135 ft across, and are operated by trawlers some 50 ft to 70 ft long, equipped with all the modern marine aids, while the trawlers carry enough ice to keep the shrimps fresh for a couple of weeks.

down to the sea for shrimps

Edwin Swarman





Bait shrimpers however, use small nets, since they do not require great numbers, but a moderate catch in good condition. The catching net is conical in shape and attached to a T-shaped handle which is pushed over the submerged sands. The equipment is handmade, like the willow basket or 'leap', shaped to fit on to the shrimper's back. It has a wooden fettle stick which lies across the chest to help in carrying the shrimps.

On very calm days the shrimps can be seen leaping in front of the net trying to get away. They can stay alive for several hours after capture, but must be cooked alive, otherwise they will remain grey instead of the brown colour usually seen in the shops.

Returning home with my catch of shrimps – having successfully avoided all hazards – I wash them thoroughly free of sand and weed, then put them into boiling water for about 10 minutes. Afterwards I spread them out on trays to cool and dry off, and sprinkle them with salt.

Shelling the shrimps can be tedious but practice makes perfect, and an expert can work at the rate of six quarts an hour. Many of the shrimps I catch are given to retired people in the neighbourhood.

Finally, I can thoroughly recommend a favourite Spanish way of cooking shrimps. The shrimps are cooked in a steel dish with a small amount of olive oil, and then sprinkled with garlic and red pepper seeds. When ready to serve, two dessertspoonfuls of brandy are poured over and set alight. 🍷



East, West and ev

In 40 years of service, **P. R. Sandars**, who retires this month from his post as overseas personnel adviser, has travelled 450,000 miles by land, sea and air in over 45 countries. Always involved with people and their problems, he has crossed oceans, deserts, mountains, rivers, to bring counsel and help to ICI employees. Through decades of sweeping political, economic and social change he has watched the Company itself changing too: entering new markets, expanding old ones, sometimes having to withdraw from certain areas, but always on the look-out for fresh opportunities. In a lifetime of landfalls and departures, he has visited Cuzco and Macchu Picchu, the ancient Inca strongholds high in the Andes; has crossed those same Andes by the railway that zig-zags daringly up from Argentina and down into Chile; seen the massive Aztec pyramids of Mexico; marvelled at the St Lawrence Seaway in Canada, the Victoria Falls and the Kariba Dam in Africa; looked on the golden Roman ruins of Baalbek, seen the pyramids of Gizeh and the tombs of Sakkara in Egypt, the Taj Mahal in India, and the sun rising over the Himalayas; climbed a volcano in Java; gambled on 'jai-alai' (pelota) in Manila and on horses in Hong Kong; visited the temples and the floating market of Bangkok; walked through the Forbidden City of Peking and the Summer Palace outside it; in Japan, seen many shrines and temples, and travelled on the Tokaido express – fastest mainline service in the world. 'It sounds wonderful,' he says, 'and it was. But it was hard work, too, because the visiting personnel man has to be open for business up to 16 hours a day'. This article, illustrated with his own pictures, recalls some of the far horizons he has known

When I joined ICI in 1929 the Company was very young. Its overseas business was conducted through a motley collection of agents and subsidiary or associated companies of the four major participants in the original 1926 merger.

Principal exports were alkalis and other heavy chemicals; dyestuffs; explosives; ammunition; and metals. The Croydon Mouldrite Company, ancestor of our Plastics Division, had not yet been acquired. There was some small production of paints based on Nobel Division's nitro-cellulose, while the machinery and skills developed for producing ammunition during the war of 1914–18 had been converted to the making of 'Lightning' fasteners.

At the village of Billingham-on-Tees, the great new Synthetic Ammonia and Nitrates plant was still being built and it was clear that much of its output would have to be sold overseas.

To strengthen the overseas organisation, the Company took on a number of young men to form a foreign pool of trainees. We were liable to be posted anywhere in the world, and were, I suppose, ICI's first truly 'international' employees. The slump of 1931 led to ICI's only 'general adjustment' of salaries downwards – and also to a drastic thinning in the ranks of the trainees. Those of us who were left (I've never discovered why I was one) had our postings abroad deferred.

Soon afterwards I became engaged to be married. Under the rules of overseas service in those days, young men were not allowed to marry during their first tour abroad – and the first tour usually lasted five years. Neither my fiancée nor I fancied waiting so long. Now that she has been my wife for 36 years, perhaps she wishes she had – but I don't. Happily, the authorities were persuaded to move me out of the pool and into the Far East Department.

War in 1939 meant immediate mobilisation for me as a Territorial, and a gap of six years – mainly chairborne. In the autumn of 1945 I came back to the Far East Department at Millbank. Except for inland China, with which a tenuous link had been maintained by hazardous flights over the Himalayas from India, the whole of the Company's former Far Eastern territory had been overrun by the war. Many expatriate managers had been interned or imprisoned, and some of them had been put to work on the infamous Siam railway. Local staff were dispersed, property and stocks had been confiscated, records lost or destroyed.

All this had to be rebuilt – in Malaya, Thailand, Indonesia (still then the Netherlands East Indies), the Philippines, Hong



everywhere – for ICI

Left: AFRICA, Lake Magadi, Kenya, 1960. From this lake the Magadi Soda Company, an ICI subsidiary, supplies all Kenya with salt – a side-line to producing soda ash from its natural deposits. This manual 'garnering' is now mechanised
Below: JAVA, 1955. Buffaloes pull a primitive plough through the mud of a paddy-field. Later, the field will be flooded (as in corner, top right) and the rice plants set out singly by hand
Right: TURKEY, 1958. Fishermen of the Bosphorus, the narrow sea channel dividing Europe from Asia, mend their nets. Many excellent fish are caught here



Kong, the vast mainland of China, and Japan, devastated by bombing, by defeat and by the losses of 'colonies' in Manchuria, Korea and Formosa [now Taiwan].

The completion of this task within two or three years was due to the loyalty of former members of the local staff who rallied to the ICI flag as soon as it was re-hoisted – some brought in useful Company records, and even cash they had hidden quickly in the last few hours before invasion – and also to the speed with which many expatriates returned to duty in places where the barest amenities of life were still lacking, often with only the minimum time needed to recover from the effects of their internment.

Travel in those days was a matter of Government priorities, so my first visit could not take place until 1948, when I made a six-month tour of most of the Far East. That tour took me to Malaya and Singapore, already well on the way to recovery, thanks to the world's demand for rubber and tin; to the Netherlands East Indies, still wracked by fighting between the Dutch and Soekarno's independence movement; to Peking, Shanghai and elsewhere in China, just before Mao Tse-tung won the final battle for Communism in a country where inflation had already brought down the value of the biggest note – 50,000 dollars – to 4d.; where people carried suitcases instead of purses; and where we had to pay our staff three times a month in time for them to do their shopping the same day before their money lost even more of its value.

It also took me to Japan, still under the rigorous military government of General MacArthur, and only very slowly beginning to put together again its broken economy and morale.

In 1949 mainland China disappeared behind the 'bamboo curtain' and our organisation there had to be dismantled, though we were not allowed to pay off the staff in Shanghai and withdraw our last expatriates until all our assets on the mainland had been handed over to the Chinese Government in 1955.

I was lucky enough to revisit Peking and Shanghai in 1954 with an exploratory trade mission. Soon after leaving Canton by air we had to come down again and change over to rail – so we travelled by train throughout the length of China from Canton to Peking and back through Shanghai, and I saw something of the country under its new communist rule. It was almost incredible to see what could be done by mass labour in the absence of mechanical equipment. During this most

East, West and everywhere — for ICI

enjoyable and interesting visit I sold about £125,000 worth of Company products (the only actual sales I ever made for ICI). We were most hospitably treated by our hosts, but somehow it felt good to get back to the Union Jack at the Hong Kong end of the frontier bridge at Lowu.

During eight years, from 1949 to 1956, I visited most of the territories every year. Malaya passed through its period of insurgency towards prosperity and independence. Through all the 'troubles' the agricultural advisory staff of ICI (Malaya) continued to visit outlying rubber estates in the Company's own armoured car. As a visitor one was kept out of harm's way, but I realised what life was like for estate managers and their wives when I called at a rubber estate for lunch one day.

The estate house was surrounded by wire and sandbag walls, with four fortified turrets at the corners, manned by armed police and equipped with floodlights. When we went to visit the 'factory,' our

young hostess, who had never been out of England until two years before, handed over the baby in its pram to the 'amah' and automatically picked up her revolver from the hall table. Her husband went off daily round the estate, always by a different route, and she could never know when — or even whether — he would return.

In Indonesia, chaos receded and we built up a staff of twenty expatriates, only to have to withdraw all except two or three of them 'at the drop of a political hat'. After that, chaos descended again. One got quite used to having a sten gun shoved through the car window — always in the friendliest way — while the boot and one's luggage were searched at the innumerable roadside checkpoints.

Meanwhile, further east, Japan's slow climb back into the world suddenly became a great leap, thanks initially to the urgent needs of the US forces during the Korean war. Among many memories, one that stands out was the evening in February 1957 when the present chairman of ICI, then Mr Peter Allen, signed the 'Terylene' licensing agreement with Teikoku and Toyu Rayon. Very properly it was signed among the decorative geisha girls in a restaurant — and followed by a party at which the saké flowed.

In 1957 I completed my final tour as Head of Far East Department by flying home

from Japan across Canada and the USA. On that occasion, thanks to the International Date Line, I arrived at Vancouver at 6 pm, having left Tokyo at 7 pm on the same day.

Since then my job as overseas personnel adviser has taken me not only to the Far East but to much of the rest of the world too; South and Central America, North America and the Caribbean; East, West, Central and South Africa; India, Pakistan, Ceylon and Burma, together with many countries of the Middle East and Europe. In all, I covered over 450,000 miles, visited over 45 countries. This seems a lot, but is small beer by ICI standards; and to put it in perspective, I have also clocked up something like 400,000 miles since 1929 just commuting between my office and home.

Travel takes one away from home and that is hard. But how much harder it is for one's wife — my wife and all the other wives of ICI's travellers — left behind to cope with family, frozen pipes and frustration, while the husband (it seems) goes swanning around the world. I thank mine now for the many times she has seen me off at London Airport and collected me again and kept the home fires burning without complaint — or not too much!

In earlier years, much of the overseas personnel work was concerned with off-setting the effect of inflation on the cost of living of expatriate staff, and this involved sometimes delicate investigation into how people spent their money. After one such investigation an overseas friend gave me the following quotation from the American poet, Robert Frost, which I had framed, and have kept on my desk ever since. Alas, I have not always been able to follow it:

'Never ask of money spent
Where the spender thinks it went.
Nobody was ever meant
To remember or invent
What became of every cent.'

My reward for these 40 years has been a host of friends, of many nationalities, races, creeds and ages; and the feeling that one may have done something to preserve, even improve the good relations that ICI seeks to have with its staff throughout the world. What has pleased me most has been to watch — and perhaps to help a little — the rise of the local people in many of our overseas companies to take over top management posts formerly filled by British expatriates. In spite of this the total number of our expatriate staff has remained almost constant, because ICI is continually expanding into new fields.

Now, as I retire from the scene, we enter a new phase, in which an increasing number of our staff, whatever their countries of origin, will be truly international men, able and ready to serve the Group, and their own careers, anywhere in the world. Perhaps, before I finish drawing my pension, we shall have an ICI Main Board that will meet in turn in each of the five continents — and each will be represented on it. ☺

HONG KONG, 1954. Hong Kong and Kowloon, not unlike a much warmer Scotland in some ways, is today a dynamic industrial and commercial community. But fishing goes on in the old style from boats like these, in which whole families may live and die. Years ago, ICI (China) sold gas mantles for the paraffin lamps many fishermen used: today, many of their nets are of ICI synthetic fibres



November in your garden

Percy Thrower

Photographs: John Cowley

Right: 'When planting, dig each hole large enough for the roots to spread out.'
Far right: 'I put fine soil between the roots, replace the top soil and tread it firmly in'



This has always been looked upon as the orthodox planting month of the year for roses, shrubs, deciduous trees and evergreens, but times and fashions have changed a lot over the last few years. Since the selling of 'containerised' plants, trees and shrubs of all kinds was introduced, many thousands are now planted during the spring, summer and autumn with much success.

By this means, of course, planting can be done when weather and soil conditions are so much better. Not many years ago I would have held up my hands in horror at the thought of planting trees, shrubs, roses and other plants in flower – but it is so much easier for many people to make their choice when they see the various plants in flower, especially those they perhaps could not recognise from their botanical names.

Planting from containers can, of course, still be done and many will find this a much more convenient way. Containerised trees, shrubs and plants cost a shilling or so more than those lifted and sold from the nurseries during the dormant season. During the next few months many thousands of roses, trees and shrubs will be planted. Those planted this month, while the soil temperature is still reasonably high, stand a much better chance of success than those planted later, because they can begin to establish themselves before the really bad weather sets in. Preparations for planting permanent plants such as these must be thorough; so much can be done before planting that will be impossible to do afterwards.

To prepare for roses, dig the soil at least the depth of the spade; as the digging is done, mix manure, garden compost or peat in with the soil. After the digging, spread bone meal over the surface at the rate of two to four ounces to the square yard. Far too many people think bone meal is a

complete plant food, which it is not – it provides only a phosphate – but it does last a long time, breaking down gradually over several months.

In the spring, before the roses begin to make their new growth, give them a complete rose fertiliser, such as ICI's 'Rose Plus', containing the three essentials plus the added magnesium. Before planting, make the soil firm by treading – but only when the surface of the soil is reasonably dry. Mark out the position of the roses by putting in small sticks, two feet apart between hybrid tea roses, and two-and-a-half feet between floribundas.

When planting, dig each hole large enough for the roots to spread out. I put fine soil between the roots, replace the top soil and tread it firmly in. If the union between the root stock and the rose is just below the surface when planting is done it will be level with the surface when the soil has finished settling.


When planting standard roses, don't plant too deep, but again the hole must be large enough for the roots to spread out. The stake which will support the standard must go into the hole before the rose, to prevent damage to the roots. It must be high enough to support the top of the standard which will be quite heavy when in leaf and in flower and which will need the support to prevent the wind breaking the top off. These days there are the neat plastic straps with a plastic cushion to go between the stem of the rose and the stake to prevent chafing.

Prepare for planting shrubs much as you would roses. Manure, garden compost, peat or other humus-forming substances improve the texture of the soil. The spacing of shrubs is most important; a good shrub catalogue will tell us the height to which the shrub will eventually grow, and the spread. Smaller shrubs need to be three to

four feet apart, taller, larger-growing ones six, eight or perhaps ten feet.

Far too many trees and shrubs are lost through planting too deep. If we look at the stem, we shall see the soil mark indicating the depth at which it was planted in the nursery. This must be our guide and that should be the depth to which the tree or shrub is planted – and no deeper.

Shrubs I would recommend for the average-sized garden include the *Daphne mezereum* (purple, spring flowering); *Hypericum Hidcote* variety (yellow, summer flowering), *Potentilla* (yellow and cream, flowering from May until October); *Lavender Hidcote* variety; Hardy Fuchsias; *Senecio greyii* (yellow flowers in summer, and silver foliage the year through); *Santolina incana* (Cotton Lavender, bright silver foliage and yellow button-like flowers during the summer months); *Spiraea Anthony Waterer* (crimson flowers, summer and into the autumn); *Hydrangea paniculata*, much more hardy in all parts of the country than *Hydrangea hortensia* because this produces its large panicles of creamy white flowers on the current year's growth; and winter flowering shrubs, such as *Viburnum fragrans* (pink and sweetly scented), *Hammamelis mollis* (yellow, flowering from December onwards), and *Mahonia japonica* (with holly-like leaves and long racemes of lemon-yellow flowers smelling like lily-of-the-valley).

By careful selection of your shrubs you can have one in flower every month of the twelve months of the year. They provide colour and interest in the garden, and being permanent, keep the recurring work down to the minimum. When planting permanent subjects, such as roses and shrubs, the initial outlay is much greater than planting bedding plants, but the saving in time and money in the long run is very considerable. 



ICI at Asian Trade Fair

Products and processes offered by twelve ICI Divisions and subsidiaries were featured on a large Company stand which formed part of the British pavilion at the second Asian Trade Fair, held last month in Tehran.

The stand was designed as a major prestige exhibit which indicated the growing role of ICI in trade with Asia and drew attention to many of the products which the Company now has available for industry and agriculture in the Near and Far East.

Visitors to the stand during the early stages of the three-week Fair included Princess Margaret and Lord Snowdon, who called at Tehran while on their way home from a recent stay in Japan. Both showed a keen interest in the various sections of the stand, where they were welcomed by Mr Albert Frost, ICI finance director. Mr Frost, who spent five days in Iran and met many ICI customers and agents, is seen below with Princess Margaret.

Another distinguished visitor to the stand was Lord Brown, Minister of State at the Board of Trade.



£4100 'Nitram' Steeplechase

Forty-six horses from Irish, Scottish and English stables were entered in the £4100 ICI 'Nitram' Handicap Steeplechase at Teesside Park racecourse on November 1. It was the richest race ever run at the course.

Details of the race, sponsored by Agricultural Division, were given during October by Colonel Kit Egerton, manager and clerk of the course, and Mr K. H. L. Cooper, a deputy chairman of Agricultural Division.

The Division has given £3000 to the race stakes and offered a £100 trophy, and the racecourse executive has added £1000 to the stakes. Winner gets 65 per cent of the stakes;

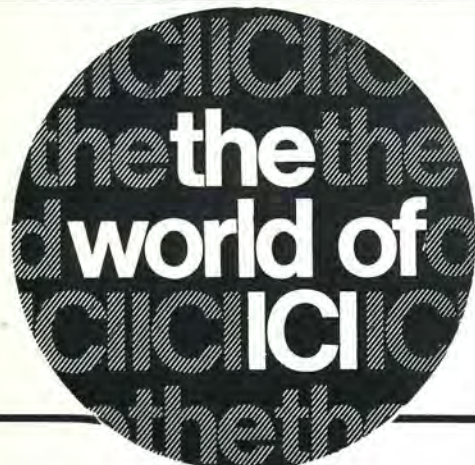
second, 20 per cent; third, 10 per cent; fourth, 5 per cent. Open to 4-year olds and upwards, the 'Nitram' Steeplechase is over 2½ miles and 15 fences. At the time of going to press, the race was yet to be run.

In sponsoring the race, Agricultural Division chose the November meeting to coincide with the commissioning of the new 'Nitram' fertilizer plant at its nearby Billingham works. Both *The Billingham Post* and *Wilton News* have been running ticket competitions for readers. Teesside Park has long been favoured by the northern farming community whose nitrogen fertilizer needs will be served by the new plant. The racecourse itself has been treated with 'Nitram', which is the most concentrated ammonium nitrate fertilizer available.

Chairman at Bozodown

On a recent visit to ICI's Central Instrument Research Laboratory at Bozodown House in Berkshire, Sir Peter Allen, Company Chairman, examines a reactor in the chemical kinetics laboratory, where computer-controlled research experiments are taking place. With him are, left to right, Dr J. E. White, project leader; Mr C. A. J. Young, head of laboratory; Mr R. L. Day, senior group manager; Mr J. G. Thomason, a group manager





Europe's medical press visit Pharmaceuticals Division

Twenty-nine medical writers and editors from fifteen different European countries recently visited Pharmaceuticals Division's HQ and research department at Alderley Park and its main works at Macclesfield. Flying in to Manchester Airport, the visitors saw for themselves what the Division is doing, and heard from the chairman, from other directors and from senior managers of its plans for the future. Simultaneous translation into French and German was arranged in the Tenants' Hall, Alderley House, where the various talks were given and the visitors' questions answered.

In this first large-scale visit of its kind by specialist medical writers from Europe, the visitors heard from Mr R. G. Hoare, Division chairman, about the rapid development of the

Division, about the various pressures on the industry – increased research risks and costs, pressure on prices and patents, stricter regulations – and also how those pressures were producing a contraction in the number of pharmaceuticals companies.

'We believe,' he added, 'that the pressures . . . will continue, as will the contraction in the number of active companies. Within the foreseeable future the industry could well be dominated by some twenty or so international companies. The future opportunities . . . are such . . . that we intend to be one of those companies.'

From Mr A. Baxter, overseas director, the visitors heard of the world-wide operations and, among other things, how the European share of the business had risen from 5 per cent in 1946 to 40 per cent in 1968. Local processing overseas, essential for continued growth, and basic manufacture there has also

increased. 'By 1950 local processing was established in 5 countries . . . basic manufacturing in one. Today there is local processing in 38 countries, basic manufacturing in four.'

'Pharmaceutical research was currently about one tenth of ICI's total research', said Dr A. Spinks, a deputy chairman of Pharmaceuticals Division. They expected to spend about £3m on it in 1969. 'Nearly 90 per cent of our total business over the last 20 years has been obtained from products invented or mainly developed in the Division,' he emphasised. The Division intended to expand its research effort by 50 per cent in the next three or four years.

Other speakers included Dr F. L. Rose, manager Chemistry Department, on research in the Division; Mr J. D. F. Barnes, European manager, on the Division in Europe; and Dr A. S. Haigh, Macclesfield works manager, on the background and operation of Macclesfield Works.

'Crimplene' in Finland

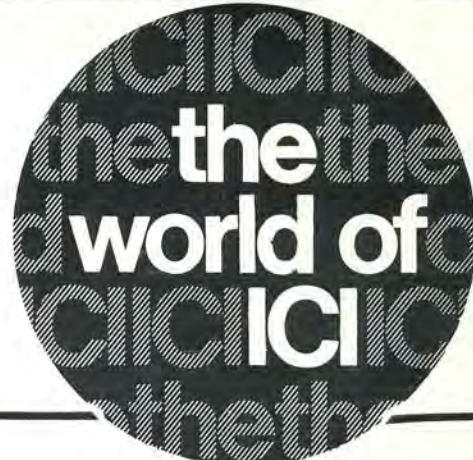
More than a thousand members of the Finnish textile trade attended the biggest fashion show ever held by ICI in Helsinki – and they looked at over 100 garments in 'Crimplene' and 'Terylene.' Title of the show was '70 'Crimplene' – vuosikymmen' – ('70s – the 'Crimplene' decade'). Guests, who included retailers from all over Finland together with yarn processors and manufacturers, were welcomed by Mr Antti Rislakki, manager Suomen ICI, and addressed by Mr Robert Haslam, deputy chairman, ICI Fibres Ltd



'Icicle' visit

Two members of the ICI Board, Mr R. S. Wright (second from right), personnel director, and Mr S. D. Lyon (right), organisation and services director, and liaison director for Nobel Division, toured the 'Operation Icicle' installation at the new catering unit, Ardeer Nylon Works, on October 17 (see page 260). Here they are seen with Mr R. L. Stinton, ICI catering adviser, as he explains part of the operation. Mr Wright was accompanied by Mr J. A. G. Coates, general manager – personnel





'Building Plus' Exhibition

During the next six months, ICI's 'Building Plus' exhibition of building products from many different Divisions and from IMI, will visit eleven different UK centres, with a programme of product presentations and films. Second of its kind, the travelling exhibition is on a bigger scale than last year's. Organised by the Building Development Group of ICI with the various Divisions and companies concerned, its aim is to emphasise the Company's breadth of interest and involvement in the building industry. At its opening in the Royal Lancaster Hotel, London, in late October, attendance was more than double last year's total, despite an underground transport strike on the first two days of the exhibition.

ICI at the Motor Show

Paints Division, ICI Hyde, Plastics Division and ICI Fibres were all well represented at this year's Motor Show at Earls Court, London, in October, with products which ranged from electrical printed circuits in 'Melinex' polyester film to seat trim on the new Mark II versions of the Triumph 2000 and 2.5 PI models in a corded material made from Fibres' 'Bri-nylon.'

Paints Division showed their complete range of car finishing products and metal pre-treatment systems, including 'Dulux' enamels and acrylic finishes. The ICI Hyde display featured the recently introduced Austin 'Maxi,' in which ICI products include seating in 'Ambla' expanded vinyl coated fabric, 'Novon' pvc for door panels and 'Vulkide'-O flexible plastic sheet for the fascia.

Plastics Division's products on display included 'Alkathene'-backed car carpet, bearings made from 'Fluon' PTFE, heater ductings in 'Propathene' polypropylene and seat-belt buckles in 'Kematal' acetal copolymer.

The new versions of the Triumph 2000 and 2.5 petrol-injection models are the first British cars to be offered with interior trim in corded 'Bri-Nylon' as an optional alternative to vinyl at no extra cost. The fabric is produced by special light-resistant yarn, is treated with a stain-repellent finish and is bonded to foam for extra resilience. Fabric-trim is popular on the Continent and a number of British manufacturers are making tests with 'Bri-Nylon.'



'Crimplene' for two: Brigitte Patard, from the Telex room at Produits Chimique de Baleycourt, a subsidiary company of I.C.I. France, and Michel Carré, of the distribution department, were married last month at Verdun. She wore a 1900-style 'Crimplene' lace wedding dress, provided by ICI (Europa) Fibres GmbH. He wore a dark blue 'Crimplene' suit provided by I.C.I. France

New joint company

A 10,000 tons-a-year plant to make siliceous fillers, used in the rubber industry and in the manufacture of paints, paper and pesticides, is to be built at Widnes, Lancashire, by a new joint company formed on a 50-50 basis by ICI and the West German company Degussa, major producers of these fillers.

The joint company will use 'know-how' at present employed by Degussa in making siliceous fillers at their plant at Wesseling, near Cologne. Mond Division will be responsible for operation of the Widnes plant, which is expected to start up in the second quarter of 1971, and for the managing of the new company. The board will have an equal number of members from each of the two partners.

Syon Park for meetings

London's newest set of conference rooms are in the grounds of a stately home – inside the Gardening Centre in the Duke of Northumberland's estate at Syon Park, Brentford, Middlesex, nine miles from Hyde Park Corner and six miles from London Airport. The Centre is easily reached along the North and South Circular Roads and the Great West Road.

Car parks provide ample – and free – space for cars or coaches, while the conference rooms, overlooking beautifully-landscaped grounds, offer rural peace and quiet within thirty minutes' drive of central London. Delegates may wander at leisure through 55 acres of gardens forming part of the nation's first permanent centre of horticulture.

Three halls are offered all the year round; the main hall, holding up to 220 people; the conservatory lounge (up to 60); and the board room for small meetings (12). Amplifying and visual aid equipment, plus operator is also available. From November to March a further new hall is available which seats 300 people or 250 with desks. Organisers may arrange lunch either in the Planter's Grove Restaurant or in the conference hall itself. Lunch can be served in the Conservatory lounge for 60 people. Coffee and tea may be served at all times.



Eighty last month, Mr Hermann Schlosser, above, served Degussa, Frankfurt for fifty years all told – as a member of the executive board, as its chairman, and finally as chairman of the supervisory board. He retired in 1964. Throughout his business career he has known and worked with ICI and its predecessor Brunner, Mond, doing much to develop the friendship between ICI and Degussa

How 'Crossbow' gives the answers

Every day the expansion of science adds more and more knowledge to the already immense resources in research centres and in industry. For the research chemist who makes what he thinks to be a new substance this poses an immediate problem: how to check that the compound is not already described among the millions in the published literature of chemistry, or in our own reports.

To help him, ICI has developed and is introducing within the Company a new computer programme which enables the scientist to make his checks quickly and cheaply and which represents a major advance in the technique of scientific information storage and retrieval.

Known as 'Crossbow' (Computerised Retrieval of Organic StructureS Based on Wiswesser), the system is also expected to help make possible the computer prediction—by analysis of a mass of data on many compounds—of what new chemical structures might be particularly effective in applications being studied by the research chemist. This could be particularly valuable in the search for new drugs.

Introduction of the 'Crossbow' system was announced at a recent Millbank press conference by Dr M. A. T. Rogers, of Research and Development at Head Office. Dr Rogers, who has been closely involved in the development of the system, told journalists from the scientific and technical press that a problem for the research chemist was that organic chemical structural formulae, although a truly international scientific language, could not be put, as such, into an index for classification, storage and retrieval. To do this, names had to be written—and these were very complex both to write and to understand.

For example, N,N-dimethyl-N-(1-naphtha (2, 1-6) thienylmethylidene)-p-phenylene diamine-N-oxide is a typical and not particularly complicated name for a chemical structure. But such a name, while necessary in the past, has disadvantages; writing a correct name and 'de-coding' back from a complex name to a structure can be quite difficult procedures at which rela-

tively few organic chemists become skilled. The chemist searching for information on existing compounds wants to be able to examine the information in the form he most readily understands—the structural formula. Additionally, he does not want a mere list of chemical substances. He wants to have brought to his attention those structures which contain certain features or fragments which he thinks are relevant to his work.

Research-based companies such as ICI, which has more than 100,000 samples of pure chemicals on its shelves, need to index them, but the chemist needs the index in a form which enables him to extract from it information which throws light on his own activities. It has to be in terms of chemical structural formulae, not names.

This is what 'Crossbow' does, quickly, cheaply and with little risk of error. The first and only intellectual step by an operator is to convert the structural diagrammatic formula into a line notation, known as the Wiswesser Notation after the American chemist who invented it. (Using this system, a very high proportion of all organic structures can be uniquely described by a series of letters and numbers all written on one line.) Converting the diagrammatic formula into a Wiswesser notation should take an operator about half-a-minute, and then, with little clerical and key-punching work, the computer takes over.

Working to the ICI-devised programme, the computer constructs from the notation a 'connection table' which it holds in its memory. It then checks that the structure is not already in the collection, breaks it down into fragments and adds them to a master file of fragments.

This file can then be readily searched as instructed and finally the computer prints out the structures of those compounds 'found' as answers to the search question in diagrammatic form on a slightly-modified conventional line printer. The chemist can then see for himself those details most relevant to his work. 'Crossbow' will also help research in another, more funda-

mental way. Because the computer can hold information about the structural formulae of a wide range of chemicals in its 'memory', it will be easier to programme a computer to identify the common features of a group of chemicals with useful properties, so helping to predict what new structures might be particularly effective. The aim is to 'teach' the computer to predict.

Within the Company, the system is already at work and the first 'in-put' was the structural formulae of ICI's own big collection of chemicals, which could have a replacement value of about £20m.

The fundamental thinking behind 'Crossbow' has already been published by the Company—but other organisations wishing to apply it would find it very costly to write their own programmes. ICI is therefore making copies of its four basic programmes available under certain conditions.

Among those at the press conference who have been closely involved in the development of the system were Mr Ernest Hyde, of Pharmaceuticals Division's Data Services Section; Mrs Lucille Campey, a Canadian chemist with 'an aptitude for solving apparently impossible programming problems', and Mr Peter Baker, in charge of the Crossbow Centre and a member of Head Office Research and Development Department.

Mrs Campey first became involved in Mr Hyde's work when, as Miss Thomson, she was working for Canadian Industries Ltd in Montreal and he was seconded to CIL as a good location to develop his ideas on computerized information retrieval. He worked there with Dr F. W. Matthews, head of CIL's information services who has now himself been seconded to Head Office Research and Development Department, where he will work on internal and external technical information services. Later, an ICI team visiting Canada to study their work included Geoffrey Campey, then of Central Management Services, and now in Dyestuffs Division. Mrs Campey is now engaged as a consultant to ICI. ☺

Dr Rogers

Mr Hyde

Mrs Campey

Mr Baker



OPERATION ICICLE

Every single day of the working year thousands of people in ICI suddenly switch from being producers of chemicals, revenue, ideas, figures, paper, to become quite demanding consumers for an hour or so – the lunch hour.

These large numbers of Company diners need quite a major production process to satisfy their tastes. To buy, prepare, cook and serve even one dish of the right quality, in the right way, at the right time, on this scale, takes some doing, and has also been costing more and more in recent years.

So, Company catering has been closely studied to keep costs down, standards up. With all available techniques, the catering service now makes better use of people, equipment and space, while the introduction of national foodstuff contracts has secured better value for money from its suppliers up and down the country.

None of these changes, however useful at cutting costs and maintaining overall quality and variety of service, affected the cooking process itself. Meanwhile the costs of food, of materials, and of labour kept on going up, leading to higher prices and an ever-larger subsidy from the Company. By 1967, the catering management headed by Reg Stinton, the Company's chief catering adviser, and Roy Noakes, assistant chief catering adviser, had exhausted the possibility of further orthodox economies. Something much more basic was needed.

Now, something has been found, tested out and put into practice in a special Head Office production unit at the Nylon Works of Dyestuffs Division, Ardeer. 'Operation Icicle', as the name suggests, is concerned with the freezing of food, but it is also a complete system into which the freezing operation is far more closely integrated than before, making it possible for catering managers and their staffs to plan further ahead and to work more effectively.

The Icicle system does for cooking – and for the whole catering task of which cooking is only one part – what other new techniques, like computer control, mechanisation, electronic data processing and so on have done for other processes. It streamlines, standardises, simplifies. Above all, it multiplies the speed and scale of catering, maintains quality and choice – and helps to keep down costs.

A month's production menu is drawn up by the production manager and circulated to local catering managers and managers who decide how many portions of each dish they will need. These figures are

then summarised into an overall estimate for the food-production team to work on. Next, the manager of the production unit orders his foodstuffs to make sure they arrive as and when needed.

The dishes, already known to be popular with diners in the area, are carefully prepared to the highest standards, with rigid control of quality, portion sizes, and cooking, and scrupulous attention to hygiene. Then they are placed into aluminium foil trays holding from six to ten portions each and sealed with descriptive printed lids.

These trays are placed on racks and put into a blast-freezing tunnel until the contents are solid and reduced to a temperature of -5°C . Once frozen, the sealed trays of food go quickly into a sub-zero cold store at the production centre, where they are kept at this temperature until needed. They are then put into insulated containers or refrigerated transport and sent to the local catering units which serve the meals. Dishes selected by the local catering manager are delivered weekly from this central cold store to his restaurant, where he also keeps them, in his own sub-zero refrigerators, until needed.

On the day they go on the menu, the required portions are heated in special ovens at the catering units for a predetermined time, then displayed on the service counter. From there they pass to the diner's plate as at present.

The range of 'Icicle' products is enlarged by a variety of cold meats, salads and snacks, produced daily by the end units, providing a menu which gives wide variety of choice. For example, the menu available in the Ardeer cafeteria on the day our photographer visited the unit was as follows:

Friday

Tomato Soup
Plain Omelette
Farmhouse Omelette
Fried Fillet Haddock
Fish Fingers
Macaroni Cheese
Beefburgers
Poached Chicken and Rice
Steak and Kidney Pudding
Cold Meats and Assorted Salads
Haricot Beans in White Sauce
Garden Peas
Chipped Potatoes
Mashed Potatoes
Tapioca Pudding
Trifle
Apricot Sponge/Custard Sauce

Our picture story shows you how 'Operation Icicle' works and introduces you to some of the people who launched the system and others who are running it.

In 1967 Reg Stinton, chief catering adviser, set up Catering Cost Improvement Committees to look at the five main areas of catering activity in ICI and appointed Roy Noakes, right, to act as chairman of them all. 'We decided to look at the Scottish situation first,' Roy Noakes told us, 'because the Nylon Works, Ardeer, of Dyestuffs Division, then in its early stages of construction, had a new catering unit scheduled and we thought it sensible to see whether we had to have self-contained units at this site and at the Nobel site nearby, or whether we could dovetail the work for the two into one central unit. So, together with the Company's Divisional Catering Managers with Scottish units – A. J. Smith of Dyestuffs, A. B. Galloway of Nobel and A. T. Hatherill of Plastics Division, we tried to find a way of improving and rationalising the catering service in the area.

'We looked particularly at the blast-freeze technique of preparing meals in bulk, studying other companies' operations, using the same methods, in order to satisfy ourselves that a meal produced and served in that way would appeal to ICI diners and would not lower existing standards of cooking and serving food. We did this very critically because we had all heard pretty strong views on the tastelessness of frozen food. We have used frozen vegetables and occasionally other deep-frozen products, but frozen meals were quite another matter. To adopt such a process would involve a lot of work to make sure the whole idea was feasible. The work was aided by the advice of a consultant who had been working on the problem for a number of years.

'Three facts stood out after all the critical sampling and comparing which the team did. If good-quality foodstuffs are used; if production is carefully controlled with all recipes tested and settled in advance; and if all the normal care taken in producing any food at all is built-in to the process the result will be at least as good for the diner as anything he is having at the moment.

'Having satisfied ourselves on the quality of the product we could then tackle the financial and technical problems. In November 1967 – at which time firm instruction had to be given to the builders – we submitted our recommendations.



'By September 1968, the unit was in its final stages of construction, and as soon as was possible we began pilot production of the 150 dishes, each of which was carefully and patiently tested in advance. We prepared and froze six of these one day and end-cooked them the next. Then we tasted the results. We found we needed to make very few adjustments to existing recipes. Once a recipe had cleared our test run, it went straight into production.' Summing up, he points out that: 'We are already producing 3000 meals a day in the same space needed under conventional methods to produce 600 meals a day. With the old methods, actual cooking only takes place up to the lunch period, with very little after it. With blast-freezing, we get an 8-hour working period and cooking and freezing goes on throughout the day. But we don't only save space, we need fewer pieces of cooking equipment because we are using them all the time. It also helps us to use labour to better advantage since we are now able to concentrate our skilled catering people in one centre to serve a given Company area, instead of having to disperse them in half-a-dozen smaller ones. This should lead to more centralised catering on given sites – and in the long run, to better standards.'

'In the last 2 years,' says Alec Smith, right, (catering manager, Dyestuffs Division, and a member of the 1967 Catering Costs Improvement Committee), 'I have visited this unit many times and have seen the system develop from the drawing board right up to the serving of the first "production" meal in late 1968. 'As an ex-chef I found it all quite a challenge. We try to prepare food of the highest possible standard in spite of the large-scale production. The equipment makes this easier, although we know that more sophisticated equipment will be necessary if the system is expanded into other areas. 'At first, it was not easy,' he says, 'to adjust to food production on such a large scale. When we started production it was a little disturbing to see the hundreds and hundreds of braised steak portions, the hundredweights of diced meat, or the many bags of prepared onions and carrots. 'Andrew Galloway, in addition to his work as a committee member, played an active part in launching the project. He was initially responsible for supplying prepared cuts of meat, potatoes and vegetables to the Production Unit. He gave considerable early assistance on recipe testing and helped to build up the initial bulk stock. He now handles licle foods on the Nobel site at Ardeer.'



OPERATION ICICLE



ADVANCE PREPARATION: On a given day the food prepared in the kitchen is never for that day (except cold dishes or cold sweets) but for periods of up to one month ahead. This applies also to the cooking. Only the 'conversion' – really the last stage of cooking – will be for that day's menu. Above: Alma Fulton and Peggy McCready prepare vegetables which will be eaten as part of the dish of stewed beef and vegetables



COOKING AHEAD: Working to a special standard recipe, the production team cooks the food (which arrives already trimmed into portion sizes, together with the vegetables for the dish). Here David Linton makes a final check on quality and size of portions. Once cooked, not completely, just enough to let the final heating finish the job later, the food – braised steaks for example – is put into aluminium foil trays, covered with a printed lid, and instantly frozen



FILLING THE TRAYS: The next step is to fill the trays with stewed lamb and vegetables, which will be on the menu in three weeks' time



INTO THE FREEZER – Peggy McCready places a pile of trays into the blast freezer, using a trolley with racks specially designed in the Division for the job. 'The freezing process,' stresses Roy Noakes, 'is very important. To get the best results, you freeze the food as quickly as you can after it is prepared. Conventional methods, which can take as long as six hours, would not suit us at all. Our equipment reduces the temperature of its food from 180°F to 5°F within 1½ hours. The faster you freeze a dish, the more nutriment you preserve in it. Once a dish is cooked, the quicker it goes into the freezer the better it will be – and taste.' After blast-freezing, it is transferred into the cold store, which has 5000 cubic feet of space and can hold 200,000 containers



HEATING TODAY – The cooking time of every item to be frozen is carefully controlled to allow the forced-air convection oven to finish the work. These are ordinary electric ovens with a fan installed to circulate the hot air, spreading the heat far more evenly than usual, and avoiding any cold spots in the final product.

Of any half-hour spent in the oven by a frozen meal, twenty minutes goes on taking all the ice out of the food, only the last ten minutes on the actual cooking. On any given morning, this cuts down the time between the end of the cooking and the beginning of the eating by as much as one hour for any dish that otherwise takes a relatively long time to cook on the day of serving. It also cuts out long periods of keeping food warm – never very satisfactory but often unavoidable until now. Here Mary Malone places the food chosen for that day into the convection oven. Ten minutes before serving, these trays are taken out and arranged on the counter. Each one holds ten portions and the diner can ask for what he wants, just as he would at an ordinary counter



OVER THE COUNTER: Inside the cafeteria itself, a wide range of appetising dishes prepared in the way we have shown can be served. So far as the customer is concerned the actual choice of dishes is wider than would be possible on any given day with conventionally-cooked meals. (A typical menu at Ardeer is given on page 260.) And the whole operation can be planned much further ahead



– AND OUT: David McKelvie takes out some trays of bread and butter pudding which have been frozen, to place into the low-temperature store for future use. This could be as long as eight weeks later



– AND TONIGHT: For the night shift, a similar, self-operated system has been put in, working on a much smaller scale. Here John Givens, having just obtained a steak from the coin-operated deep-freeze Automat, takes out his heated meal from the microwave oven (which reaches 140°F temperature in a maximum of three minutes) and will soon be eating his supper. This service is available 24 hours a day



'We are a very modern factory,' says Sandy Morrison, works manager, Nylon Works, Ardeer, 'and now we have a catering service in keeping. It's bright, clean and cheerful – and it serves all our daytime people. The choice and quality compares very well with any other works restaurant. For shift workers the system has permitted the introduction of a meal vending service. This is widely used and much appreciated particularly in the small hours!' 